

WHAT IS CLAIMED IS:

1. A surgical instrument comprising:
 - a handle having an elongate tubular member extending distally from the handle;
 - an end effector provided on a distal end of the elongate tubular member;
 - a driver mounted for movement relative to the elongate tubular member to operate the end effector;
 - an energy storage mechanism for storing and providing energy to move the drive rod; and
 - an actuation mechanism operable on the energy storage mechanism to control the rate of release of the energy stored in the energy storage mechanism.
2. The surgical instrument as recited in claim 1, wherein the energy storage mechanism includes a spring and a piston operable on the spring.
3. The surgical instrument as recited in claim 2, wherein the energy storage mechanism includes a piston rod affixed to the piston and engageable with the driver.
4. The surgical instrument as recited in claim 3, wherein the energy storage mechanism includes gear structure on the piston rod operable with gear structure on the driver to move the driver in response to movement of the piston rod.
5. The surgical instrument as recited in claim 3, wherein the energy storage mechanism includes an energizing handle mounted to the handle and connected to the piston rod such that movement of the energizing handle compresses the spring.

6. The surgical instrument as recited in claim 1, wherein the actuation mechanism includes a fluid to contain and release energy stored in the energy storage mechanism.
7. The surgical instrument as recited in claim 6, wherein the actuation mechanism includes a valve to control the flow of the fluid.
8. The surgical instrument as recited in claim 7, wherein the actuation mechanism includes a bypass valve to allow movement of the fluid when the valve is closed.
9. The surgical instrument as recited in claim 1, wherein the actuation mechanism includes a brake system, operable on the energy storage mechanism to restrain and release energy stored in the energy storage mechanism.
10. The surgical instrument as recited in claim 1, wherein the actuation mechanism includes a flywheel operable on the energy storage mechanism.
11. The surgical instrument as recited in claim 1, wherein the energy storage mechanism includes a motorized mechanism for storing energy.
12. The surgical instrument as recited in claim 2, wherein the energy storage mechanism includes a motorized mechanism operable with the spring to compress and store energy in the spring.
13. A surgical instrument comprising a handle having an elongate tubular member extending distally from the handle;
 - an end effector provided on a distal end of the elongate tubular member;
 - a driver mounted for movement relative to the elongate tubular member to operate the end effector;

- a compressible spring mounted in the handle;
 - a piston having a piston rod affixed thereto; the piston engageable with the spring in response to movement of the piston rod;
 - a gear mechanism on a first end of the piston rod, the gear mechanism being engageable with the driver to move the driver relative to the handle;
 - an actuation mechanism operable on the energy storage mechanism to restrain the spring and control the rate of release of energy stored in the energy storage mechanism.
14. The surgical instrument as recited in claim 13, wherein the piston and spring are mounted in a fluid tight cylinder pivoted in the handle.
15. The surgical instrument as recited in claim 14, wherein a fluid is provided in the cylinder and moveable from one side of the piston to another side of the piston within the cylinder in response to operation of the actuating mechanism.
16. The surgical instrument as recited in claim 13, wherein the actuation mechanism includes a brake operable on the gear mechanism.
17. A surgical instrument for driving an end effector comprising:
- a handle having an elongate tubular member extending from the distal end of the handle;
 - a driver movable within the elongate tubular member and operable on an end effector;
 - an energy storage mechanism at least partially positioned within the handle and operable on the driver to move the driver within the elongate tubular member;

an actuation mechanism operable on the energy storage mechanism to control the rate of release of the energy stored in the energy storage mechanism.

18. The surgical instrument as recited in claim 17, wherein the actuation mechanism restrains the energy contained in the storage mechanism.

19. The surgical instrument as recited in claim 17, wherein the handle has a pistol grip shape.

20. The surgical instrument as recited in claim 19, wherein the actuation mechanism has a damping system to control the rate of release of energy from the energy storage mechanism.